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EXAMINER	
ALLISON, ANDRAE S	
ART UNIT	PAPER NUMBER
2624	

NOTIFICATION DATE	DELIVERY MODE
12/07/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

Office Action Summary	Application No.	Applicant(s)	
	10/716,782	COHEN ET AL.	
	Examiner	Art Unit	
	ANDRAE S. ALLISON	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *RCE filed 10/21/2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-17 and 19-54* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-17 and 19-54* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11/18/2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/21/2009*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submissions filed on October 21, 2009 have been entered. Claims 1, 3-17 and 19-54 are pending.

Response to Remarks

Claim Rejections – 35 USC section § 103

In response to Applicant's argument on pages 14-16 that Westman does not teach "a substantially connected component that includes non-edge pixels and a plurality of substantially connected edge pixels being substantially connected to the selected edge pixels wherein the number of non-edge pixels in the substantially connected component is based on a level of tolerance for non-edge pixels", however, the Examiner disagrees. Specifically, Applicant argued that Westman discloses that an image is segmented into components based on "connectivity of" adjacent pixel and one of ordinary skill in the art would conclude, at most, that each basic connected component includes only non-edge pixels. However, such conclusion is not concrete.

First Westman teaches that the connectivity are based on connected component (see page 796, section 2, [p][005], lines 1-8), which equivalent to Applicant's invention. Also note that a threshold is used to determine which pixels belong to the object's +boundaries, which is again equivalent to Applicants invention. Moreover, on page 797, [p][009], teaches where a determination is made whether two significant edges should be connected , which means that non-edge pixels has to be proceeds for that determination to be made. Figures 3a-3c, depicts various stages of segmentation, which shows different threshold levels applied to an image. Fig 3b has some dots and an extra line, Fig 3c does not show all of the dots and the line is no longer present. This processing could not have been done without processing non-edge pixels.

Applicant arguments with respect to the limitation "establishing within the image a bounding area, wherein the bounding area comprises a perimeter that is different from the substantially connected component and surrounds the substantially connected component" have been considered but are moot in view of the new ground(s) of rejection.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the image a bounding area, wherein the bounding area comprises a perimeter that is different from the substantially connected component and surrounds the substantially connected

component must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. Claims 1, 3-17 and 19-54 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application

was filed, had possession of the claimed invention. Claims 1, 17, 33 and 40 recite the limitation establishing within the image a bounding area, wherein the bounding area comprises a perimeter that is different from the substantially connected component and surrounds the substantially connected component, however, there is no support in the specification for this limitation. Applicant pointed to Fig 1, however Fig 1 does not describe or show the limitation. Applicant also cited page 4, 5, 7 and 9, however, none of the cited portion teach this limitation. Therefore, one of ordinary would not be able to practice this invention without undue experimentation.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 3-7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (US Patent No.: 6,665,439) in view of Westman et al (NPL Document titled: "COLOR SEGMENTATION BY HIERARCHICAL CONNECTED COMPONENTS ANALYSIS WITH IMAGE ENHANCEMENT BY SYMMETRIC NEIGHBORHOOD FILTERS") further in view of Chang et al (NPL titled: A component-labeling algorithm using contour tracing technique).

As to independent claim 1, Takahashi discloses a computer-implemented method for identifying one or more objects within an image (image recognition method; column 1, lines 11-12) the method comprising: receiving an image that includes two or more non-overlapping embedded images (e.g. 40 and 41, see Fig 4); identifying a plurality of edge pixels based on a respective gradient value (detect the color change between two objects, column 12, lines 61-63) associated with each of the plurality of edge pixels (edge image, column 12, line 54); selecting an edge pixel from the plurality of edge pixels (1001, see Fig 11), wherein the gradient value of each edge pixel satisfied a first threshold value (see column 154, lines 12-42 and equation 6 - where an edge threshold value t is used to identify edge pixels); identifying one or more non-edge pixels in the image based on a respective gradient value associated with each of the plurality of non-edge pixels, wherein the gradient value of each non-edge pixel satisfies a second threshold value (note that if the pixel does not satisfy this threshold, its not considered an edge – see column 15, lines 20-30).

However, Takahashi does not expressly disclose identifying a substantially connected component that includes non-edge pixels and a plurality of substantially connected edge pixels being substantially connected to the selected edge pixels wherein the number of non-edge pixels in the substantially connected component is based on a level of tolerance for non-edge pixels. Westman discloses a method for image segmentation (see abstract), which includes the step of identifying a substantially connected component that includes non-edge pixels and a plurality of substantially connected edge pixels being substantially connected to the selected edge pixels

wherein the number of non-edge pixels in the substantially connected component is based on a level of tolerance for non-edge pixels (see page 796, section 2, [p][005], lines 1-8). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modified the image recognition method of Takahashi with the image segmentation method of Westman to extract object from an image by scanning the image pixel by pixel from left to right and bottom to top in order to identify connected pixel regions i.e. regions of adjacent pixels which share the same set of intensity values, and after completing the scan, the equivalent label pairs are sorted into equivalence classes and a unique label is assigned to each class.

Note the discussion above, Takashi in view of Westman does not teach establishing within the image a bounding area, wherein the bounding area comprises a perimeter that is different from the substantially connected component and surrounds the substantially connected component. Chang disclose a method for finding connected component (see abstract) which includes the step of establishing within the image a bounding area (inner circle, B - see Fig 1(a)), wherein the bounding area comprises a perimeter (outer circle A– see Fig 1(a)) that is different from the substantially connected component (note that A is the outer contour and B is the inner contour - see section 2) and surrounds the substantially connected component (see Fig 1(a)). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have combined the image recognition method of Takahashi as modified by Westman with the method for finding connected component of Chang to detect and label internal and

external contours associated with each connected component and to label interior areas of components in the same pass of a binary image (see section 1, [p][005]).

As to claim 3, Takahashi teaches the wherein identifying a plurality of edge pixels includes computing the respective gradient value for each of a plurality of pixels in the image (detect the color change between two objects, column 12, lines 61-63).

As to claim 4 Takahashi teaches the method wherein computing the gradient value for each of the plurality of pixels includes, for each pixel comparing respective pixel colors of a neighborhood of pixels surrounding the given pixel (column 30, lines 15-25).

As to claim 5, Takahashi teaches the method wherein computing the respective gradient value for each of the plurality of pixels includes using an image smoothing filter-to-filter noise from the image (column 2, lines 52-56).

As to claim 6, Takahashi teaches the method further comprising passing each component to a processor that extracts the location of the object from the component (column 4, lines 58-59).

As to claim 7, Takahashi teaches the method, further comprising refining the extracted location (column 4, lines 20-54-58).

As to claim 10, Takahashi teaches the method, further comprising merging the bounding are within the image with another bounding area within the image into a single bounding area (column 29, line 63-67).

6. Claims 8, and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (US Patent No.: 6,665,439) in view of Westman et al (NPL Document titled: "COLOR SEGMENTATION BY HIERARCHICAL CONNECTED COMPONENTS ANALYSIS WITH IMAGE ENHANCEMENT BY SYMMETRIC NEIGHBORHOOD FILTERS") further in view of Chang et al (NPL titled: A component-labeling algorithm using contour tracing technique) further in view of Huang et al (US Patent No.: 5,671,290).

As to claim 8, Takahashi in view of Westman and Chang does not disclose expressly the method further comprising using the extracted location to crop the embedded image from the image. Huang discloses a method for identifying people (column 1, lines 23-13) including using the extracted location to crop the embedded image from the image (column 2, lines 57-58). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have added the method for identifying people of Huang to the image recognition method of Takahashi as modified

by Westman and Chang to eliminate unneeded portions not specifically depicted part of the extracted object (column 2, lines 58-60).

As to claim 11, Huang teaches the method further comprising: extracting a location of each of the two or more non-overlapping embedded images from the image; and using the location to seed a crop operation (column 2, lines 57-58).

As to claim 12, Huang teaches the method of wherein using the extracted object location to seed a crop operation includes: for each of the two or more non-overlapping embedded images in the image, using the location to define a cropping area; and cropping all the defined cropping areas in a single cropping operation (column 4, lines 20-24).

As to claim 13, Huang teaches the method wherein: the location specifies an alignment of one of the two or more non-overlapping embedded images with respect to the image; and using the location to define a cropping area includes using the alignment of one of the two or more non-overlapping embedded images to define an alignment of the cropping area (column 9, lines 45 - 60).

7. Claims 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (US Patent No.: 6,665,439) in view of Westman et al (NPL Document titled: “COLOR SEGMENTATION BY HIERARCHICAL CONNECTED COMPONENTS

ANALYSIS WITH IMAGE ENHANCEMENT BY SYMMETRIC NEIGHBORHOOD FILTERS") further in view of Chang et al (NPL titled: A component-labeling algorithm using contour tracing technique) further in view of Huang et al (US Patent No.: 5,671,290) further in view of Noda et al (Pub No.: US 2002/0030634).

As to claim 14, Takahashi in view of Westman, Chang and Huang disclose expressly the method further comprising: prior to cropping all the defined cropping areas, adjusting one or more of the defined cropping areas in response to user input. Noda discloses a method for image synthesis ([p][002], lines 1-2) wherein prior to cropping all the defined cropping areas, adjusting one or more of the defined cropping areas in response to user input ([p][0106], lines 1-3). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combined the image synthesis method of Noda with the image recognition method of Takahashi as modified by Huang so that a user could adjust the location of the boundaries or contours of the identified object(s) so that the object(s) can be cropped properly.

As to claim 16, Curtright does not expressly disclose the method wherein adjusting one or more of the defined cropping areas includes splitting a single cropping area into two or more cropping areas. However, it would have been obvious to split a single cropping area into two or more cropping areas so that if two cropped area are identified as one, the area would be split into two or more before performing the crop operation (OFFICIAL NOTICE).

8. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (US Patent No.: 6,665,439) Takahashi (US Patent No.: 6,665,439) in view of Westman et al (NPL Document titled: "COLOR SEGMENTATION BY HIERARCHICAL CONNECTED COMPONENTS ANALYSIS WITH IMAGE ENHANCEMENT BY SYMMETRIC NEIGHBORHOOD FILTERS") further in view of Chang et al (NPL titled: A component-labeling algorithm using contour tracing technique) further in view of Huang et al (US Patent No.: 5,671,290) further in view of Curtright et al (US Patent No.: 5,844,570).

As to claim 15, Takahashi in view of Westman, Chang and Huang disclose expressly the method further comprising: prior to cropping all the defined cropping areas merging two of the defined cropping areas into a single defined cropping area. Curtright discloses a method for generating digital map that includes merging two cropping areas into a single cropping area (column 6, lines 15-20). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to added the method for generating digital map of Curtright to the image recognition method of Takahashi as modified by Huang so that if one cropped area is identify as two area objects, the cropped areas are merged into a single area before performing the crop operation.

Note that Curtright does not disclose performing the operation prior to cropping all the defined areas, however, it would have been obvious to crop all the defined areas so that if one object is erroneously identified as two, the areas would be merged or combined before carrying out the cropping operation (OFFICIAL NOTICE).

9. Claims 9, 17, 19-33 and 40-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (US Patent No.: 6,665,439) in view of Westman et al (NPL Document titled: "COLOR SEGMENTATION BY HIERARCHICAL CONNECTED COMPONENTS ANALYSIS WITH IMAGE ENHANCEMENT BY SYMMETRIC NEIGHBORHOOD FILTERS") further in view of Chang et al (NPL titled: A component-labeling algorithm using contour tracing technique) in view of Prakash et al (US Patent No.: 6,778,698).

As to claim 9, Takahashi in view of Westman and Chang does not expressively disclose the method further comprising splitting the bounding area of the image into a first of the two or more non-overlapping embedded images and a second of the two or more non-overlapping embedded images. Prakash discloses an image segmentation method that includes splitting the bounding area of the image into a first of the two or more non-overlapping embedded images and a second of the two or more non-overlapping embedded images (column 3, lines 37-38). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have combined the image segmentation method of Prakask with the image recognition method of Takahashi to split edge pixels of multiple objects erroneously identified as a single object into multiple objects.

As to independent claim 17, note the discussion above, this claim differs from claim 1 only in that claim 17 is computer program product whereas, claim 1 is method and the limitations computer-readable medium, instructions and programmable

processor are additively recited in the preamble. Prakash teaches a computer program product stored on computer-readable medium (116, see Fig 2) comprising instructions (program instructions (see Fig 2) and executed by programmable processor (114, see Fig 2).

As to independent claim 33, note the discussion above of claims 1 and 17, all the limitations are discussed except: receiving a scanned image that includes multiple objects; erasing from the edge pixel map all the edge pixels that belong to the connected component or that are enclosed by the extracted object; and (6) repeating steps (2) through (5) until no more edge pixels are found. Takahashi teaches erasing from the edge pixel map all the edge pixels that belong to the connected component or that are enclosed by the extracted object (column 29, lines 63-65); and (6) repeating steps (2) through (5) until no more edge pixels are found. Note the discussion above, Westman teaches a scanned image that includes multiple objects (see page 796-797, section 2, [p][006]).

As to independent claim 40, this claim differs from claim 1 only in that claim 40 is system whereas, claim 1 is method and the limitations a display device and machine-readable storage device including a program product are additively recited. The machine-readable storage device including a program product is discussed above. Regarding the display device, Prakash clearly teaches a display (see column 1, line 51).

Claims 19-32 differ from claims 3-16 only in that claims 3-16 are method claims whereas, claims 19-32 are product claims. Thus, claims 19-32 are analyzed as previously discussed with respect to claims 3-16 above.

Claims 41-54 differ from claims 3-16 only in that claims 3-16 are method claims whereas, claims 41-54 are system claims. Thus, claims 41-54 are analyzed as previously discussed with respect to claims 3-16 above.

10. Claims 34, 36 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (US Patent No.: 6,665,439) in view of Westman et al (NPL Document titled: "COLOR SEGMENTATION BY HIERARCHICAL CONNECTED COMPONENTS ANALYSIS WITH IMAGE ENHANCEMENT BY SYMMETRIC NEIGHBORHOOD FILTERS") further in view of Chang et al (NPL titled: A component-labeling algorithm using contour tracing technique) in view of Tessadro (US Patent No.: 7,003,161).

As to claim 34, Takahashi in view of Westman and Chang does not expressly disclose the method further comprising setting the tolerance level based on a user input. Tessadro discloses a boundary detection method that includes the step of setting the tolerance level based on a user input (see column 4, lines 1-12). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Takahashi and Tessadro to locate an edge position bounded or defined

by two significant colored region or color-textured regions with the aid of a GUI (column 3, lines 38-46).

Claim 36 differ from claim 34 only in that claim 34 is a method claim whereas, claim 38 is a product claim. Thus, claim 36 is analyzed as previously discussed with respect to claim 34 above.

Claim 38 differ from claim 34 only in that claim 34 is a method claim whereas, claim 38 is a product claim. Thus, claim 38 is analyzed as previously discussed with respect to claim 34 above.

11. Claims 35, 37 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (US Patent No.: 6,665,439) in view of Westman et al (NPL Document titled: “COLOR SEGMENTATION BY HIERARCHICAL CONNECTED COMPONENTS ANALYSIS WITH IMAGE ENHANCEMENT BY SYMMETRIC NEIGHBORHOOD FILTERS”) further in view of Chang et al (NPL titled: A component-labeling algorithm using contour tracing technique) in view of Acharaya et al (US Patent No.: 6,094,508).

As to claim 35, Takahashi does not expressly disclose the method further comprising automatically determining the tolerance level as a function of a spacing between the objects. Acharaya discloses automatically determining the tolerance level as a function of a spacing between the objects (see column 2, lines 53-59 At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have

combined the teaching of Takahashi and Acharya to localize a region of an image and then determine automatically without user intervention, the threshold to be applied for edge detection within the localization region (see column 2, lines 53-59).

Claim 37 differ from claim 35 only in that claim 35 is a method claim whereas, claim 37 is a product claim. Thus, claim 37 is analyzed as previously discussed with respect to claim 35 above.

Claim 39 differ from claim 35 only in that claim 35 is a method claim whereas, claim 39 is a product claim. Thus, claim 39 is analyzed as previously discussed with respect to claim 35 above.

Inquires

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANDRAE S. ALLISON whose telephone number is (571)270-1052. The examiner can normally be reached on Monday-Friday, 8:00 am - 5:00 pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on (571) 272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Wes Tucker/ /Andrae S Allison/

Primary Examiner, Art Unit 2624 July 26, 2009